CLAIMS

1. A process for the production of a composition containing active substances and/or active components, more particularly for the formation of films, coverings, layers and/or coatings, characterized in that a sol/gel process is carried out in the presence of a carrier molecule charged with at least one active substance and/or active component.

2. A process as claimed in claim 1, characterized in that the sol/gel process is carried out in the presence of a suitable sol/gel precursor.

3. A process as claimed in claim 1 or 2, characterized in that the carrier molecule charged with at least one active substance and/or active component is incorporated in a preferably porous sol/gel matrix formed in the sol/gel process.

4. A process as claimed in any of claims 1 to 3, characterized in that the sol/gel process is followed by a heat treatment which is carried out in particular for about 1 hour to about 24 hours, optionally under reduced pressure, at temperatures of about 20°C to about 100°C.

5. A process as claimed in claim 4, characterized in that the heat treatment is carried out to remove any solvent or dispersant present and to form a preferably porous sol/gel glass matrix in which the carrier molecules charged with active substances and/or active components are incorporated.

6. A process as claimed in claim 5, characterized in that the glass matrix is a matrix based on polysilicic acids, silicates, borates and/or aluminates.

7. A process as claimed in any of claims 1 to 6, characterized in that the carrier molecule has molecular cavities, voids, pores, channels or the like which are capable of accommodating the active substance and/or active component molecules.

8. A process as claimed in any of claims 1 to 7, characterized in that the carrier molecule is preferably an organic carrier molecule.

9. A process as claimed in any of claims 1 to 8, characterized in that the carrier molecule is selected from the group of cyclodextrins and calixarenes, optionally in modified and/or activated form, and derivatives and mixtures thereof.

10. A process as claimed in claim 9, characterized in that the cyclodextrins are selected from the group of α-, β- and γ-cyclodextrins, optionally in modified and/or activated form, and derivatives thereof.

11. A process as claimed in any of claims 1 to 10, characterized in that the sol/gel precursor is a gel-forming compound of silicon, boron, aluminium, titanium, zirconium or vanadium, more particularly a silicon, boron and/or aluminium compound, preferably an organic silicon, boron and/or aluminium compound selected with particular preference from the group of di-, tri- and/or tetrafunctional silicic acid, boric acid and alumoesters, more particularly alkoxysilanes (alkyl orthosilicates).

12. A process as claimed in claim 11, characterized in that the alkoxysilane is a compound corresponding to the following general formula:

$$(R^1O)(R^2O)Si(X)(X')$$

in which

- X is hydrogen or a group $-OR^3$,
- X' is hydrogen or a group $-OR^4$ and
- R^1, R^2, R^3 and R^4 independently of one another represent an organic group, more particularly a linear or branched alkyl group, preferably (C_{1-12}) alkyl.

13. A process as claimed in claim 11 or 12, characterized in that the silicic acid ester is tetramethyl orthosilicate (TMOS) or tetraethyl orthosilicate (TEOS).

14. A process as claimed in any of claims 1 to 13, characterized in that the active substance and/or active component is selected from the group of

perfumes; oils, such as essential oils, perfume oils, care oils, fragrance oils and silicone oils; antibacterial, antiviral or fungicidal agents; disinfecting and antimicrobial substances; deodorants; antioxidants; pharmaceutically active substances; biologically active substances and biogenic agents; vitamins and vitamin complexes; enzymes and enzymatic systems, such as amylases, cellulases, lipases and proteases; cosmetically active substances, such as ingredients for cosmetics and body care products; detersive substances, such as surfactants of all kinds, detersive inorganic and organic acids, soil repellents and soil release agents, oxidizing agents and bleaching agents, such as in particular hypochlorites and peroxides, bleach activators, builders and co-builders, anti-redeposition additives, discoloration inhibitors, color protectors, laundry care substances and additives, optical brighteners, foam inhibitors, pH adjusters and pH buffers; UV protection factors, UV absorbers, fluorescing and phosphorescing agents; dyes, dye compositions, pigments and other coloring substances, such as solvatochromic and indicator dyes; and mixtures of the above-mentioned compounds.

15. A process for the production of a composition containing active substances and/or active components, more particularly for the formation of films, layers and/or coatings, more particularly as claimed in any of claims 1 to 14, characterized in that it comprises the following steps:

(a) charging a suitable carrier molecule with at least one active substances and/or active component;

(b) preparing a homogeneous mixture of the carrier molecule charged in step (a) with a suitable sol/gel precursor, optionally in the presence of a suitable solvent or dispersant;

(c) carrying out a sol/gel process in the mixture prepared in step (b) to form a preferably porous sol/gel matrix in which the carrier molecules charged with active substance and/or active component

are incorporated;

(d) optionally heat-treating the sol/gel matrix formed in step (c) to remove any solvent or dispersant present and to form a preferably porous sol/gel glass matrix, preferably based on polysilicic acids, silicates, borates and/or aluminates, in which the carrier molecules charged with active substance and/or active component are incorporated.

16. A process as claimed in claim 15, characterized in that the mixture prepared in step (b) and/or the sol/gel matrix produced in step (c) is processed to, or applied as, a film, covering, layer and/or coating.

17. A process as claimed in claim 15 or 16, characterized in that the mixture prepared in step (b) and/or the sol/gel matrix produced in step (c) is applied to a preferably inert carrier surface, preferably as a film, covering, layer and/or coating.

18. A process as claimed in claim 17, characterized in that the carrier surface coated with the preferably porous sol/gel matrix containing the carrier molecules charged with active substance and/or active component in incorporated form is subjected to a heat treatment to remove any solvent or dispersant present and to form a carrier surface coated with a preferably porous sol/gel matrix, preferably based on silicates, polysilicic acids, borates and/or aluminates, the sol/gel glass matrix containing the carrier molecules charged with active substances and/or active components in incorporated form, preferably in uniform distribution throughout the matrix.

19. A process as claimed in any of claims 1 to 18 for protecting and/or storing active substances and/or active components, more particularly on carrier surfaces.

20. A process as claimed in any of claims 1 to 18 for the production of carrier surfaces with a protective and/or storage function for active substances and/or active components.

21. A process as claimed in any of claims 1 to 18 for the production of carrier surfaces with a controlled release function for active substances and/or active components.

22. A composition containing active substances and/or active components, more particularly for the production of films, coverings, layers and/or coatings, obtainable by the process claimed in claims 1 to 18.

23. Films, coverings, layers and/or coatings obtainable from the composition containing active substances and/or active components claimed in claim 22.

24. Films, coverings, layers and/or coatings which have a preferably porous sol/gel glass matrix, more particularly based on polysilicic acids, silicates, borates and/or aluminates, for the incorporation - preferably in uniform distribution throughout the matrix - of carrier molecules with active substance and/or active component molecules incorporated and/or complexed in their molecular cavities, voids, pores, channels or the like.

25. Surfaces, more particularly surfaces of inert carrier materials, to which the films, coverings, layers and/or coatings claimed in claim 23 or 24 are applied.

26. Surfaces as claimed in claim 25 with a protective and/or storage function for active substances and/or active components and/or with a controlled release function for active substances and/or active components.

27. A glass matrix, more particularly based on silicates, polysilicic acids, borates and/or aluminates and obtainable in particular by a sol/gel process and subsequent heat treatment, the glass matrix preferably being porous and carrier molecules charged with at least one active substance and/or active component being incorporated, preferably in uniform distribution, in the glass matrix.